

Kevin FYI AJ-handout 7/26/00. PRG & USAF delivered data to 6/30 dead line. Ecology data is the only thing pending c55 7/27/00

Mike Girard's Very Unofficial Status on Perchlorate Toxicology and Ecological Studies

Update: 10 July 2000

Activity and Lead Agency	Objective	Status	Schedule
1. Pathology Working Group (PWG) <i>EPA / NIEHS</i>	Develop consistent nomenclature and scoring system for reading of thyroid and brain slides across all toxicology studies.	PWG convened 15-17 March 2000	NIEHS has submitted a final report to EPA NCEA. Information concerning the findings can be found on the NCEA web page at http://www.epa.gov/ncea/perch.htm .
2. Immunotoxicity Studies <i>PSG : Burleson Research Technologies / Air Force Research Labs, Wright-Patterson AFB (hormone analysis)</i>	Repeat of Sheep Red Blood Cell (SRBC) assay due to deficiencies in original study. Conducting an additional assay that evaluates delayed-typed hypersensitivity.	Study complete	Burleson Research Technologies has completed the study and submitted a final report to EPA NCEA Jun 00.
3. Adult Male Rat Study and PK Model Development <i>DoD : AFRL WPAFB</i>	Model inhibition mechanism plus hormone changes in adult male rats.	Study complete	Male rat data to EPA as USAF Tech Report in Jun 00 (AFRL-HE-WP-TR-2000-0076). Male Rat PBPK model to EPA in Jun 00 as Consultative Letter (CL) (AFRL-HE-WP-CL-2000-0035).
4. Pregnant Lactating Female Rat Study and PBPK Model Development <i>DoD : AFRL WPAFB</i>	Model inhibition mechanism plus hormone changes in adult female rats during pregnancy and lactation (critical effect seen during lactation in first study set). Extension necessary to evaluate dosimetry for current critical effect in pups.	Study complete	Pregnancy model development to start Jul 00. Data sets for GD20, PND5 and 10 submitted to EPA as CL (AFRL-HE-WP-CL-2000-0038). Initial model for Lactation as CL (AFRL-HE-WP-CL-2000-0037).

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5. Motor Activity Study in Pups <i>DoD : US Navy</i>	Additional collection of motor activity data due to variability in original study	Study complete	Report submitted to EPA 30 Jun 00.
6. Interlab Hormone Analysis Validation <i>DoD : AFRL WPAFB</i>	Achieve consistency in hormone analysis between laboratories. Study includes 3 labs evaluating T3, T4 and TSH results from each lab	Study complete	Report submitted to EPA 15 June 00.
7. Human PK Model Phase I <i>DoD : AFRL WPAFB</i>	Model inhibition mechanism plus hormone changes in adult male humans; single exposures and repeated (14-day) regimen. Initial PB/PK model developed based on literature and preliminary human data	Initial PB/PK model complete	Initial Human Model submitted to EPA as CL (AFRL-HE-WP-CL-2000-0036).
8. Human PK /RAIU Study <i>PSG : Oregon Health Sciences University (UHSU)</i>	Supports Human PK Model Phase II (AFRL WPAFB) with iodide uptake inhibition mechanism plus hormone changes in adult male humans; repeated (14-day) regimen.	Study complete	Data sets available in Jun 00 from OHSU. Submission will be to EPA as part of update to CL for Human PBPK model summer 00. Update will include complete QA/QC audit of data.
9. Perchlorate Effects Study <i>PSG : Premedica Labs (Argus)</i>	Examines brains, thyroids, and hormones during key developmental stages in rats that correspond to time points in Study 4. Will meet data base requirements of guideline developmental study in second species.	Study complete	Report by Premedica submitted 30 Jun 00. Additional brain analysis on lower dose groups in progress. Hormone reports: one by HEST to Argus; second as USAF CL directly to EPA 30 Jun 00; third as USAF CL Aug 00.

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<p>10. Site Specific Ecological Impacts Investigation</p> <p><i>DoD : Brooks AFB</i></p>	<p>Obtain baseline analysis of eco systems to determine biotransport of perchlorate in known affected areas: Lake Mead, Nevada; Indian Head, Maryland; specific portions of the lower Colorado River;; Longhorn Army Ammunition Plant, Texas; Allegheny Ballistics Lab, WV; and White Sands, New Mexico. Sites should be representative of soil types and climate considerations. Additional site selection criteria include accessibility, known areas of contamination, political consideration, availability of known background information, local stakeholder interest, physical control of the site and a range of environmental media concentrations.</p>	<p>Statement of Work has been written and the contract awarded to Parsons Engineering Science. Site visits completed 31 May 00.</p>	<p>Pre-survey (which includes a site visit and data collection) to each of the sites will be conducted in March and April 2000. The product is a work plan, to be issued in draft the first week of May 00. The work plan will be executed starting in late May and ending in June. Analysis will follow, with results being incorporated into a technical report. Submission of the technical report to the Subcommittee is expected in the October-November 00 timeframe.</p>
<p>11. Farm Gate Food Analysis</p> <p><i>DoD : Brooks AFB</i></p>	<p>Evaluate potential impact to crops in areas where irrigation water contains perchlorate and representative of climate and soil types: corn, soy, oranges, milk and lettuce. Representative of farming practice and growing season (harvest). Factors governing uptake and potential bioaccumulation, soil conditions and mass balance to be characterized. Requires extension and validation of analytical methods to plant and animal tissues.</p>	<p>Coordinating with FDA, USDA, EPA and state parties. Draft protocol complete and in review.</p>	<p>Crop availability effects sampling timing. DoD coordinating funding issues with USDA.</p>
<p>12. Soil Column Study</p> <p><i>EPA : NERL Athens (under contract with the USAF)</i></p>	<p>Analysis of perchlorate transport within various types of soil columns.</p>	<p>Funding approved</p>	<p>Schedule to be determined.</p>

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<p>13. Developmental embryonic toxicology in amphibians.</p> <p><i>University of Oklahoma (funded by AFRL/HES)</i></p>	Determines a concentration/response curve for amphibians exposed to perchlorate and determine the ability of perchlorate to bioaccumulate in amphibians.	AFRL/HES is sending funds as a cooperative agreement.	Started 1 May 00. Final report Jun 01.
<p>14. Phytoremediation of perchlorate by woody plants</p> <p><i>University of Georgia (funded by AFRL/HES)</i></p>	Investigate degradation of perchlorate in woody plants.	AFRL/HES is sending funds as a cooperative agreement.	Started 19 Apr 00. Final report May 01.
<p>15. Analytical detection capability and validation (groundwater, blood, urine, soy, citrus etc).</p> <p><i>EPA : NERL Athens, NRMRL DoD : AFRL WPAFB and Brooks AFB</i></p>	Maintain credibility in detection capabilities. On going activities including drinking and groundwater, urine and blood. Plant and animal tissues still in coordination	Have AS-11 and AS-16 methods for sera and urine and AS-11 method for thyroid. Method development for amniotic fluid, placenta, mammary glands, milk, GI tract and contents are in progress.	Tech report in preparation for AS-16 analysis in urine.
<p>16. Treatment Technology</p> <p><i>DoD : Tyndall AFB with industry partnership</i></p>	Coordinate cleanup technology development.	In progress	Comprehensive meeting planned in conjunction with DoD Pollution Prevention Conference Aug 21-25, San Antonio, TX.